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Letter to the Editor

Emergence of multidrug-resistant *Acinetobacter baumannii* producing OXA-23 carbapenemase, Nigeria

Acinetobacter baumannii is a nonfermentative Gram-negative bacterium commonly found in water and soil.[1] Over the last decade it has become a serious emerging community and nosocomial pathogen worldwide, known to be responsible for life-threatening infections.[2] Carbapenems are the most commonly used antibiotics for treating infections caused by *A. baumannii*, but an increase in carbapenem-resistant strains of *A. baumannii* has been reported worldwide over the last decade,[3] mainly through the production of metallo-beta-lactamases (MBLs) or oxacillinases (carbapenem-hydrolyzing class D beta-lactamases (CHDLs)).[4] Four major subgroups of acquired CHDLs have been identified in the bacterium, including OXA-23, OXA-40, OXA-58, and OXA-143 beta-lactamase groups, together with the naturally occurring OXA-51 beta-lactamase.[5] Although carbapenemase-producing *A. baumannii* has been reported in many countries worldwide in Europe, South America, North America, Australia, and Asia, there are only a few reports from Africa (Tunisia, Algeria, Egypt, Libya, South Africa, and Senegal)[3,6] (Figure 1).

Here we report the presence of carbapenemase-encoding genes in imipenem-resistant *A. baumannii* among multidrug-resistant clinical isolates collected from the University College Hospital, Ibadan, south-western Nigeria. Three out of five (60.0%) *A. baumannii* clinical isolates identified between March and May

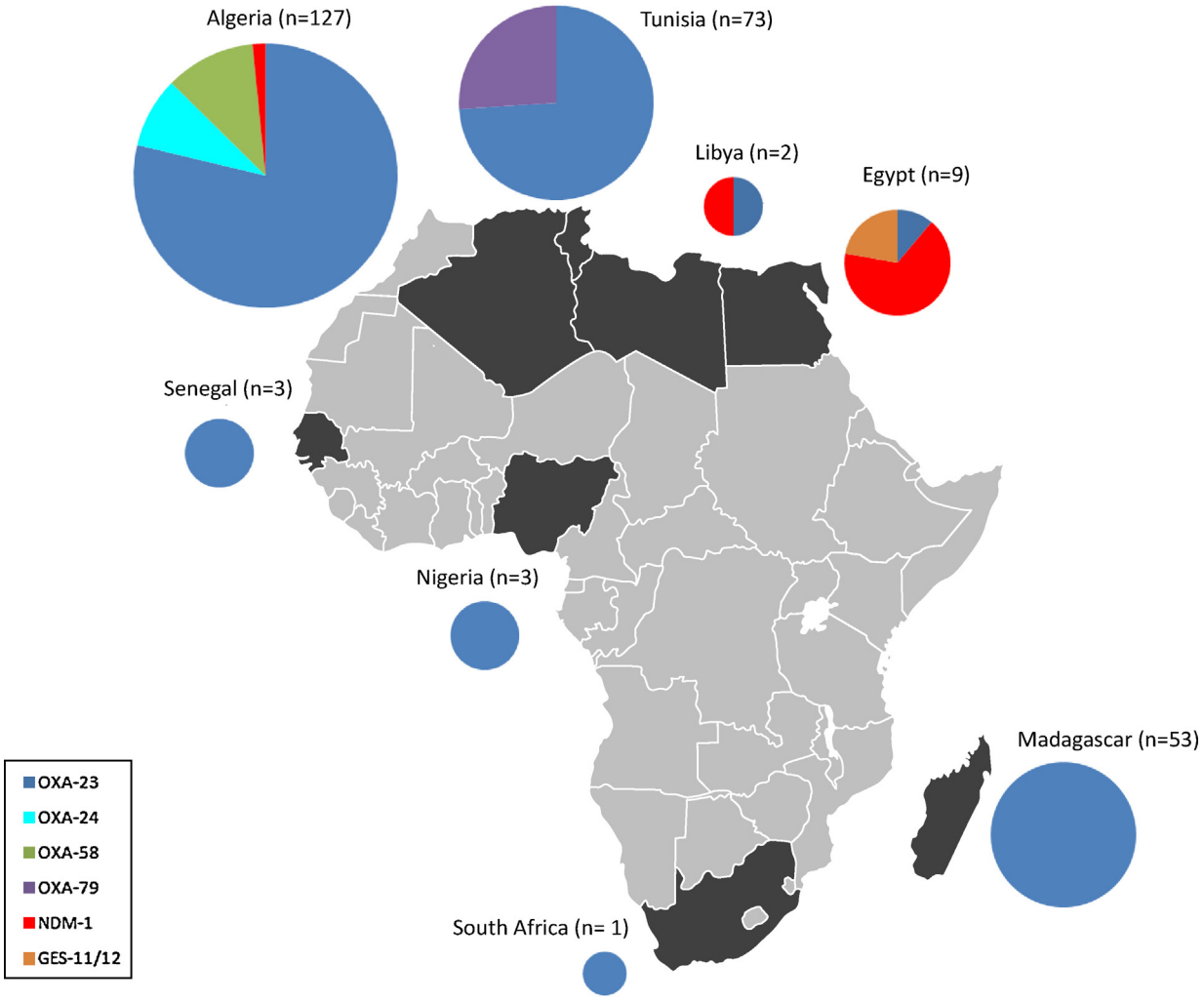

Figure 1. Emergence of carbapenemase-producing *Acinetobacter baumannii* in Africa.

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2012 using matrix-assisted laser desorption ionization time of flight mass spectrometry (MALDI-TOF) and partial sequencing of the *rpoB* gene, as previously described,[7] were multidrug-resistant, including resistance to imipenem; they were only susceptible to colistin. A modified Hodge test (MHT) using MacConkey agar and an imipenem–ethylenediaminetetraacetic acid (EDTA) combined disk diffusion test (CDDT) were performed on the carbapenem-resistant isolates and results showed that all three imipenem-resistant *A. baumannii* were positive for carbapenemase.

Real-time polymerase chain reaction (PCR) and standard PCR for the detection of $bla_{\text{OXA-23}}$, $bla_{\text{OXA-24}}$, $bla_{\text{OXA-58}}$, $bla_{\text{NDM-1}}$, bla_{IMP}, and bla_{VIM} genes revealed that the three isolates harbored the $bla_{\text{OXA-23}}$ gene, while none of the strains harbored $bla_{\text{OXA-24}}$, $bla_{\text{OXA-58}}$, $bla_{\text{NDM-1}}$, bla_{IMP}, or bla_{VIM} genes.

In conclusion, we reemphasize the worrying recent emergence and spread of carbapenemases in clinical isolates of *A. baumannii* from Africa (Figure 1). This will certainly lead clinicians to use colistin as a last resort and lead to the emergence of pandrug-resistant *A. baumannii*, as recently demonstrated in Spain[8] and in France.[9] Because infections due to such bacteria are associated with an increased length of stay in intensive care units and increased mortality, a surveillance program in Nigerian hospitals is necessary in order to implement rapid health control policies.

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Conflict of interest: None declared.

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